

ONTARIO MINISTRY OF ENVIRONMENT



36936000023223

1969

**OPERATING  
SUMMARY**

# **CHATHAM**

## **water pollution control plant**

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.A56  
C44  
1969  
MOE

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TARIO WATER  
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ONTARIO WATER RESOURCES COMMISSION

Division of Plant Operations

**TD  
367  
.A56  
C44  
1969**

Chatham : water pollution  
control plant.

81278



*Water management in Ontario*

Ontario  
Water Resources  
Commission

135 St. Clair Ave. W.  
Toronto 195  
Ontario

The operating efficiency and financial status of the water pollution control facilities operated for you in 1969 are presented in the following pages.

The regional operations engineer's comments and the statistical data will assist you in gauging the plant's level of performance. A new flow chart and up-to-date design data are also provided.

Various divisions and sections within the Commission have co-operated in providing what we trust is an accurate and concise annual operating summary.

  
D. S. Caverly,  
General Manager.

  
D. A. McTavish, P. Eng.,  
Director,  
Division of Plant Operations.



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RESOURCES COMMISSION



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**CHATHAM**  
**water pollution control plant**

operated for

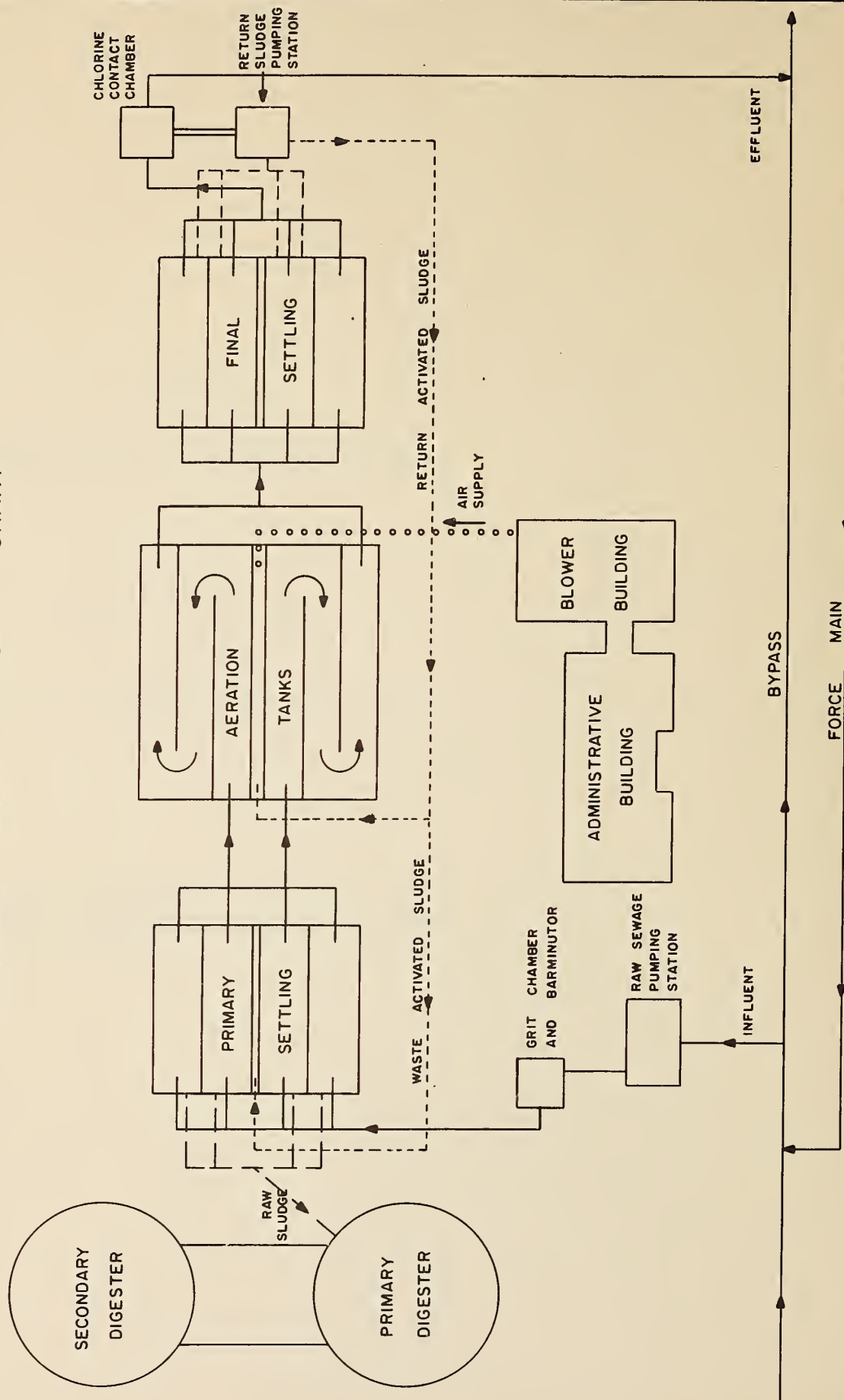
THE CITY OF CHATHAM

by the

ONTARIO WATER RESOURCES COMMISSION

**1969 ANNUAL OPERATING SUMMARY**

# CHATHAM WPCP FLOW CHART



# DESIGN DATA

|                  |           |                   |                  |
|------------------|-----------|-------------------|------------------|
| PROJECT NO.      | 2-0102-62 | TREATMENT         | Activated Sludge |
| DESIGN FLOW      | 4.5 mgd   | DESIGN POPULATION | 45,000           |
| BOD - Raw Sewage | 250 mg/l  | SS - Raw Sewage   | 250 mg/l         |
| - Removal        | 90%       | - Removal         | 90%              |

## RAW SEWAGE

### Screening

- One manually-cleaned bar screen

### Pumps

Type: Worthington  
 Size: Three 3750 gpm @ 47' tdh  
 One 3750 gpm @ 47' tdh  
 (electric & standby diesel)

## PRIMARY TREATMENT

### Grit Removal

Type: Aerated, with clamshell bucket  
 Size: One 27' x 14' x 11 2/3 (avg)  
 (27,450 gal)  
 Retention: 8.8 min  
 Air Supply: One Sutorbilt

### Comminution

Type: Barminutor  
 Size: Two model C

### Primary Sedimentation

Type: Jeffrey, two-pass  
 Size: Two 80' x 32' x 12' (avg)  
 (382,000 gal)  
 Retention: 2.05 hr  
 Loading: Surface, 878 gal/ft<sup>2</sup>/day  
 Weir, 9400 gal/ft/day

## SECONDARY TREATMENT

### Aeration Tanks

Type: Diffused air; triple pass  
 Size: Two 130' x 63' x 14'  
 (1.43 mil gal)  
 Retention: 7.6 hr

### Diffusers

Type: Schumacher tubes  
 125 per pass on 12" centres

### Air Supply

Type: Sutorbilt  
 Size: Three 2500 cfm

### Secondary Sedimentation

Type: Jeffrey  
 Size: Two 120' x 32' x 12' (avg)  
 (574,000 gal)  
 Retention: 3.08 hours  
 Loading: Surface, 586 gal/ft<sup>2</sup>/day  
 Weir, 8780 gal/ft/day

## CHLORINATION

Type: F & P  
 Size: One 2000 lb/day  
 One 400 lb/day

### Chlorine Contact Chamber

Size: One 33.6' x 30' x 10' (62,300 gal)  
 Retention: 22 min

## OUTFALL

- 1,025' to Thames River

## SLUDGE HANDLING

Digestion System - Two-stage  
 Primary--

Type: Gas mixed, fixed cover  
 Size: One 65' dia x 25' (83,000 cu ft  
 or 0.52 mil gal)

Secondary--

Type: Fixed cover  
 Size: One 65' dia x 25' (82,000 cu ft  
 or 0.51 mil gal)

# **'69 REVIEW**

## GENERAL

This project consists of a 4.5 mgd diffused air activated sludge sewage treatment plant with two-stage digestion and liquid sludge disposal, designed to treat 11,250 pounds of BOD per day. Also included are 14 pumping stations -- five prefabricated underground, two on-site, two above-ground, and five others which are owned by the City and operated by the Commission.

The plant occupies six acres of a 76-acre plot in the west end of Chatham, downstream and upwind of the City. The remainder of the property was set aside for plant expansion, and 34.5 acres have been used to build a six-cell aerated lagoon.

## EXPENDITURE

The operating cost for the year was \$149,745.68 or four cents per pound of BOD removed. The cost per million gallons, at \$100.23, was only 77 cents more than in 1968.

## PLANT FLOW and CHLORINATION (1968 figures in brackets)

The total gallonage treated in 1969 was 1494.0 (1380.4). The average daily flow was 4.10 million gallons (3.80) and represented approximately 91% of plant hydraulic capacity. The maximum one day flow of 9.7 million gallons, occurred in February and represented 216% of design capacity. Flows in excess of the primary treatment capacity were bypassed during the spring run-off period.

During August, September and October, approximately 1 mgd of waste from canning factories was redirected to the treatment plant. The rest was processed in the aerated lagoons.

From the probability graph, it can be seen that during 1969 the design hydraulic capacity of the plant was exceeded about 30% of the time.

The final effluent is chlorinated from May through October. A total of 12,410 pounds of chlorine was used at an average dosage of 6.3 milligrams per litre to retain a residual of 0.5 mg/l in the final effluent.

In addition, 12,230 pounds of chlorine or the equivalent of 4.0 mg/l was added to the wet well for year-round odour control.

#### PLANT LOADING and EFFICIENCY

The average raw sewage strengths in 1969 were 306 mg/l BOD and 250 mg/l suspended solids. The average strengths in the final effluent were 12 mg/l BOD and 12 mg/l suspended solids and represented removal efficiencies of 96% and 95% respectively. The final effluent met the OWRC objectives approximately 83% of the time. This is an improvement over the 1968 results.

Approximately four million pounds of BOD and 3.6 million pounds of suspended solids were removed during the year.

The primary effluent had an average strength of 232 mg/l BOD and 77 mg/l suspended solids, representing percent removals of 24.2 and 69.3 in the primary section of the plant.

The above results are based on 8- and 16-hour composite samples analysed at the plant laboratory.

A total of 2226 cu. ft. of grit was removed. This represents a removal quantity of 1.5 cu. ft. per million gallons of raw sewage, which is normal for this type of plant.

#### SLUDGE DIGESTION and DISPOSAL

A total of 8,270,000 gallons of raw sludge were pumped to the digester, and 3,100,000 gallons of digested sludge were removed. Most of the digested sludge was disposed of by tank truck. However, 802,500 gallons were disposed of on plant property.

#### AERATION

The average BOD to the aeration section was 232 mg/l and the average MLSS was 1327 mg/l, resulting in an average loading of 0.39 pounds of BOD per pound of MLSS. An average of 615 cubic feet of air was supplied per pound of BOD removed.

## **CONCLUSIONS**

During 1969, the Chatham plant continued to produce a satisfactory effluent in spite of overloaded conditions for part of the year. There were no major operational problems during the year. Since the average hydraulic load will exceed capacity in the near future, plans are being made to expand this capacity. It is intended to use the aeration lagoon system for part of the expansion.

## PROJECT COSTS

### STAGE 1

|                                                                       |                      |
|-----------------------------------------------------------------------|----------------------|
| NET CAPITAL COST                                                      | \$2,615,831.27       |
| DFDUCT - Portion financed by<br>CMHC/MDLB                             | <u>1,845,135.13</u>  |
| Long Term Debt to OWRC                                                | \$ <u>770,696.14</u> |
| Debt Retirement Balance at Credit<br>(Sinking Fund) December 31, 1969 | \$ <u>85,023.71</u>  |
| Net Operating                                                         | \$ 149,745.68        |
| Debt Retirement                                                       | 15,553.00            |
| Reserve                                                               | 6,126.65             |
| Interest Charged                                                      | <u>43,147.32</u>     |
| TOTAL                                                                 | \$ <u>214,572.65</u> |

### RESERVE ACCOUNT

|                             |                     |
|-----------------------------|---------------------|
| Balance @ January 1, 1969   | \$ 23,805.92        |
| Deposited by Municipality   | 6,126.65            |
| Interest Earned             | <u>1,355.60</u>     |
|                             | \$ 31,288.17        |
| Less Expenditures           | <u>3,184.89</u>     |
| Balance @ December 31, 1969 | \$ <u>28,103.28</u> |

## STAGE 2

|                                                                       |                     |
|-----------------------------------------------------------------------|---------------------|
| NET CAPITAL COST                                                      | \$813,322.12        |
| DEDUCT - Portion financed by<br>CMHC/MDLB                             | <u>504,317.16</u>   |
| Long Term Debt to OWRC                                                | <u>\$309,004.96</u> |
| Debt Retirement Balance at Credit<br>(Sinking Fund) December 31, 1969 | \$ <u>25,873.01</u> |
| Net Operating                                                         | \$ Nil              |
| Debt Retirement                                                       | 6,256.00            |
| Reserve                                                               | 2,683.98            |
| Interest Charged                                                      | <u>17,299.60</u>    |
| TOTAL                                                                 | \$ <u>26,239.58</u> |

### RESERVE ACCOUNT

|                             |                     |
|-----------------------------|---------------------|
| Balance @ January 1, 1969   | \$ 8,900.00         |
| Deposited by Municipality   | 2,683.98            |
| Interest Earned             | <u>566.27</u>       |
|                             | \$ 12,150.25        |
| Less Expenditures           | <u>-</u>            |
| Balance @ December 31, 1969 | \$ <u>12,150.25</u> |

### STAGE 3

|                                                                       |                      |
|-----------------------------------------------------------------------|----------------------|
| NET CAPITAL COST                                                      | \$1,079,015.80       |
| DEDUCT - Portion financed by<br>CMHC/MDLB                             | <u>733,301.54</u>    |
| Long Term Debt to OWRC                                                | \$ <u>345,714.26</u> |
| Debt Retirement Balance at Credit<br>(Sinking Fund) December 31, 1969 | \$ <u>24,727.64</u>  |
| Net Operating                                                         | \$ Nil               |
| Debt Retirement                                                       | 6,977.00             |
| Reserve                                                               | 2,064.74             |
| Interest Charged                                                      | <u>19,354.76</u>     |
| TOTAL                                                                 | \$ <u>28,396.50</u>  |

### RESERVE ACCOUNT

|                             |                    |
|-----------------------------|--------------------|
| Balance @ January 1, 1969   | \$ 4,691.26        |
| Deposited by Municipality   | 2,064.74           |
| Interest Earned             | <u>313.10</u>      |
|                             | \$ 7,069.10        |
| Less Expenditures           | <u>-</u>           |
| Balance @ December 31, 1969 | \$ <u>7,069.10</u> |

#### STAGE 4

|                                                                       |                     |
|-----------------------------------------------------------------------|---------------------|
| NET CAPITAL COST                                                      | \$593,032.42        |
| DEDUCT - Portion financed by<br>CMHC/MDLB                             | <u>357,876.24</u>   |
| Long Term Debt to OWRC                                                | <u>\$235,156.18</u> |
| Debt Retirement Balance at Credit<br>(Sinking Fund) December 31, 1969 | \$ <u>9,098.05</u>  |
| Net Operating                                                         | \$ Nil              |
| Debt Retirement                                                       | 4,898.00            |
| Reserve                                                               | 3,614.42            |
| Interest Charged                                                      | <u>11,760.80</u>    |
| TOTAL                                                                 | \$ <u>20,273.22</u> |

#### RESERVE ACCOUNT

|                             |                    |
|-----------------------------|--------------------|
| Balance @ January 1, 1969   | \$ 3,781.58        |
| Deposited by Municipality   | 3,614.42           |
| Interest Earned             | <u>296.32</u>      |
|                             | \$ 7,692.32        |
| Less Expenditures           | <u>-</u>           |
| Balance @ December 31, 1969 | \$ <u>7,692.32</u> |

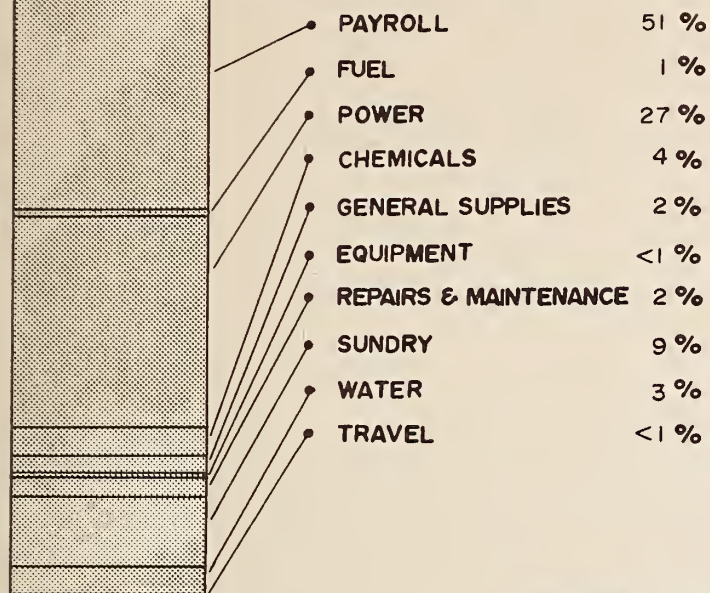
RESERVE FOR PUMPING STATIONS

|         |                  |
|---------|------------------|
| Reserve | \$ <u>329.71</u> |
|---------|------------------|

RESERVE ACCOUNT

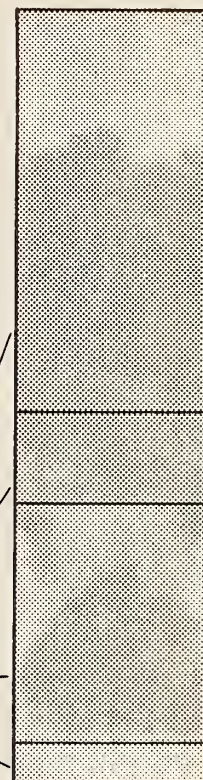
|                             |                  |
|-----------------------------|------------------|
| Balance @ January 1, 1969   | \$ 758.09        |
| Deposited by Municipality   | 329.71           |
| Interest Farned             | <u>50.50</u>     |
|                             | \$1138.30        |
| Less Expenditures           | <u>-</u>         |
| Balance @ December 31, 1969 | <u>\$1138.30</u> |

## 1969 OPERATING COSTS



## TOTAL ANNUAL COST \*

|                 |      |
|-----------------|------|
| NET OPERATING   | 52 % |
| DEBT RETIREMENT | 12 % |
| INTEREST        | 31 % |
| RESERVE FUND    | 5 %  |



## Yearly Operating Costs

| YEAR | MILLION GALLONS TREATED | TOTAL OPERATING COSTS | COST PER MILLION GAL | COST PER LB OF BOD REMOVED |
|------|-------------------------|-----------------------|----------------------|----------------------------|
| 1966 | 717.1                   | \$ 89,625.37          | \$124.99             | 5 cents                    |
| 1967 | 1130.2                  | 124,134.09            | 107.93               | 4 cents                    |
| 1968 | 1380.4                  | 137,296.11            | 99.46                | 4 cents                    |
| 1969 | 1494.0                  | 149,745.68            | 100.23               | 4 cents                    |

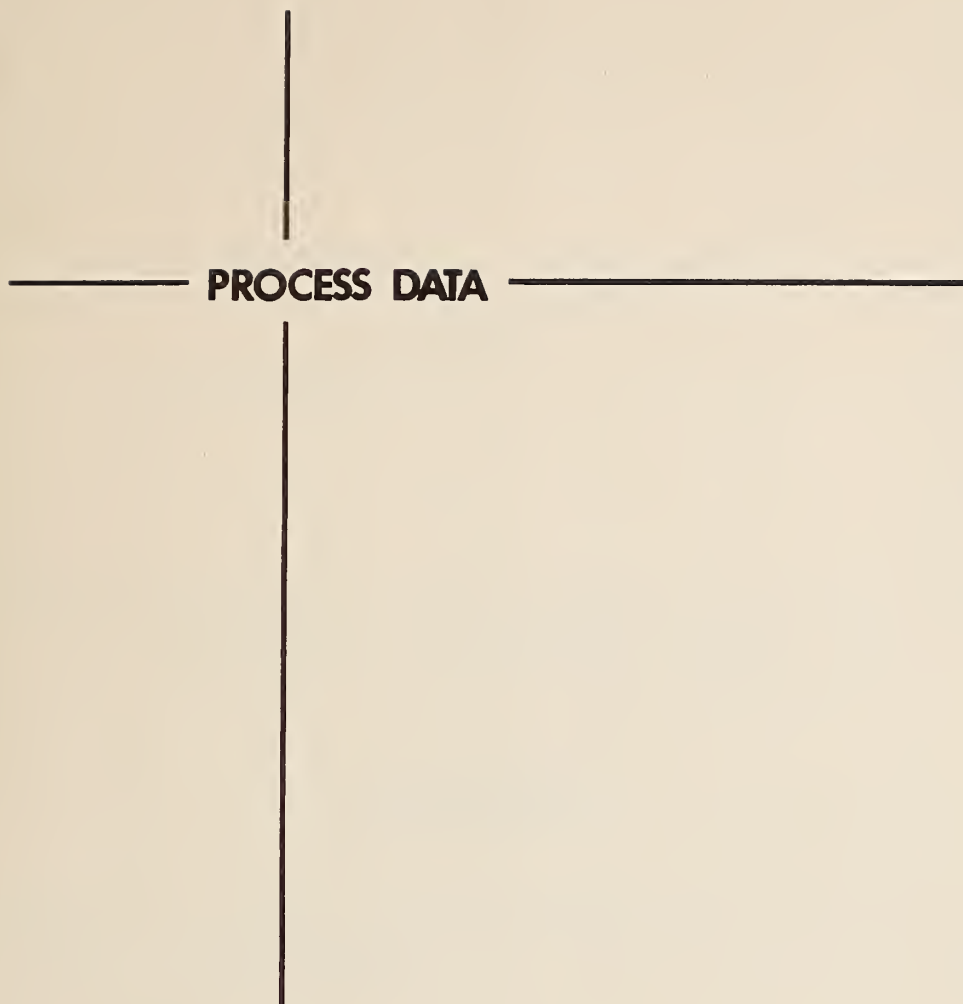
\* All stages

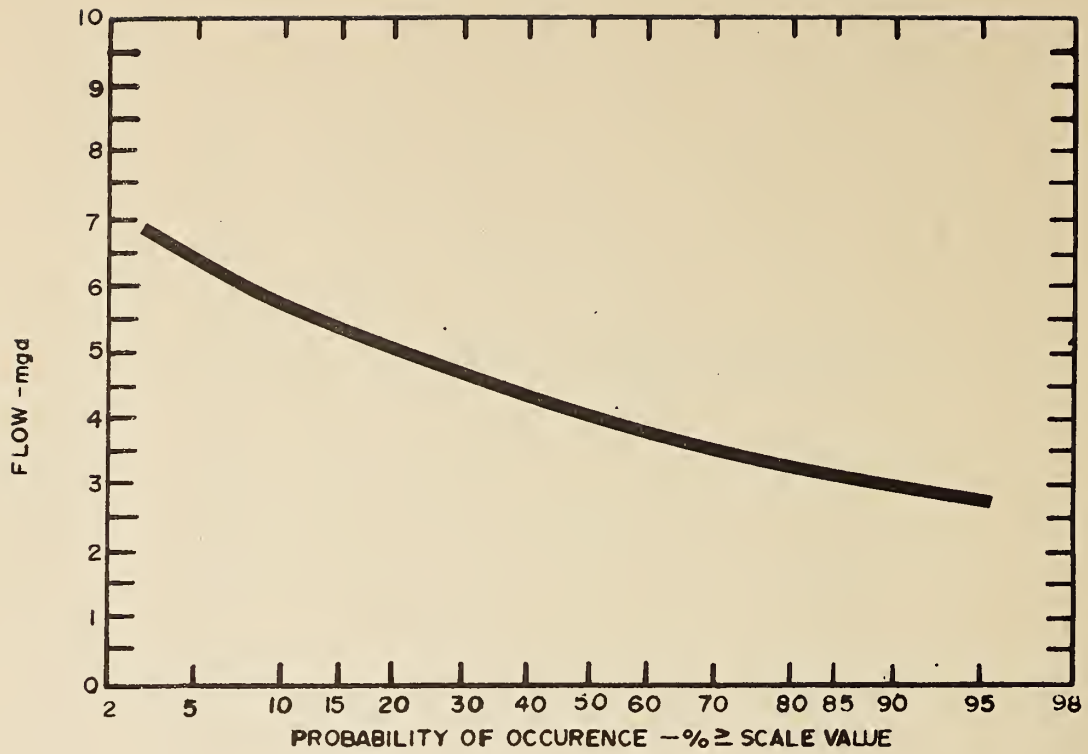
# Monthly Operating Costs

| MONTH | TOTAL EXPENDITURE | PAYROLL  | CASUAL PAYROLL | FUEL    | POWER    | CHEMICALS | GENERAL SUPPLIES | EQUIPMENT | REPAIRS and MAINTENANCE | SUNDRY * | WATER   | TRAVEL |
|-------|-------------------|----------|----------------|---------|----------|-----------|------------------|-----------|-------------------------|----------|---------|--------|
| JAN   | 9567.38           | 8170.94  | -              | 105.82  | 150.83   | -         | -                | -         | 110.14                  | 108.10   | 921.55  | -      |
| FEB   | 10481.17          | 5531.89  | -              | 333.72  | 2913.43  | -         | 17.25            | -         | 311.01                  | 1055.40  | -       | 318.47 |
| MAR   | 11606.66          | 5507.05  | 195.04         | 369.46  | 2836.78  | -         | 159.02           | -         | 618.61                  | 1195.70  | 725.00  | -      |
| APR   | 10135.21          | 5664.69  | 108.23         | (32.56) | 2805.83  | 83.48     | 211.01           | -         | 210.10                  | 1028.43  | -       | 56.00  |
| MAY   | 14021.83          | 6234.20  | -              | 27.24   | 3191.29  | 2033.85   | 231.14           | 157.90    | 342.71                  | 1040.41  | 763.09  | -      |
| JUNE  | 10790.70          | 5735.11  | -              | 177.47  | 3405.80  | -         | 263.18           | 120.30    | 56.09                   | 1017.75  | -       | 15.00  |
| JULY  | 12279.54          | 6206.44  | 64.74          | -       | 3577.32  | -         | 294.23           | 103.74    | 317.00                  | 1073.21  | 642.86  | -      |
| AUG   | 16350.99          | 8997.59  | 227.62         | 170.00  | 3852.61  | 1866.90   | 428.35           | -         | 311.75                  | 248.64   | -       | 247.53 |
| SEPT  | 12864.93          | 6078.15  | -              | 43.45   | 3612.66  | -         | 241.68           | -         | 627.82                  | 1374.40  | 886.77  | -      |
| OCT   | 10786.86          | 5970.99  | -              | -       | 3451.09  | -         | 593.01           | 42.81     | 162.16                  | 566.80   | -       | -      |
| NOV   | 10937.98          | 5959.65  | -              | 29.95   | 3612.90  | -         | 188.64           | -         | 199.97                  | 240.32   | 673.63  | 32.90  |
| DEC   | 19922.45          | 6061.84  | -              | -       | 6344.44  | 1866.90   | 986.89           | -         | 198.04                  | 4221.55  | -       | 242.79 |
| TOTAL | 149745.68         | 76118.54 | 595.63         | 1224.55 | 39754.98 | 5851.13   | 3614.40          | 424.75    | 3465.40                 | 13170.71 | 4612.90 | 912.69 |

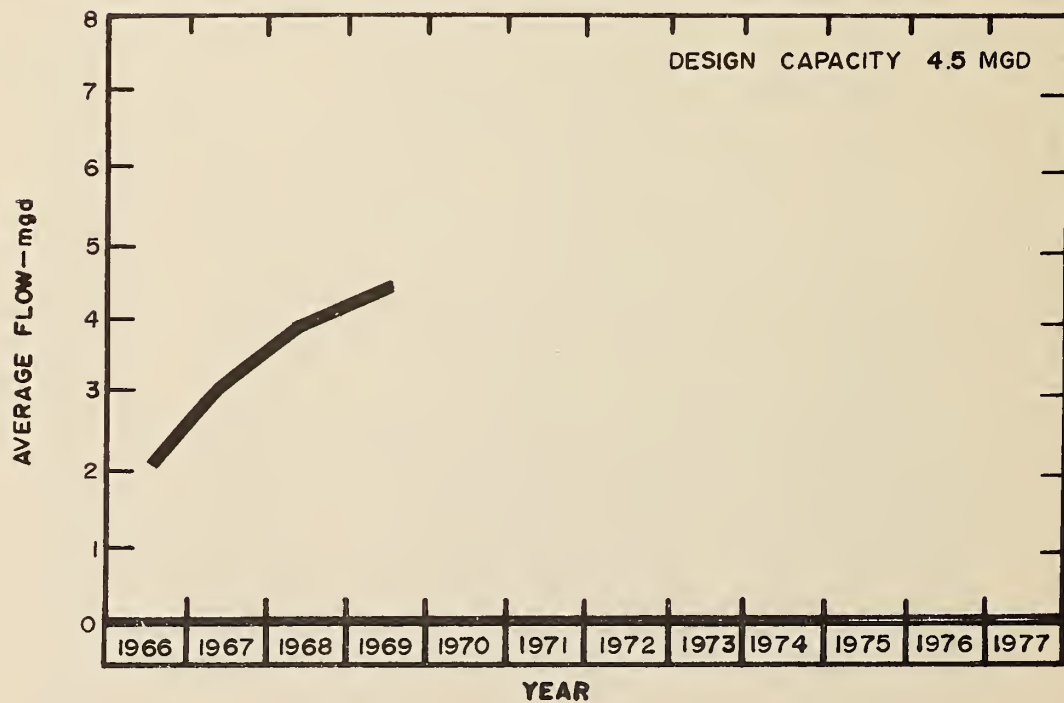
BRACKETS INDICATE CREDIT

\* SUNDRY INCLUDES SLUDGE HAULAGE COSTS WHICH WERE \$8840.20



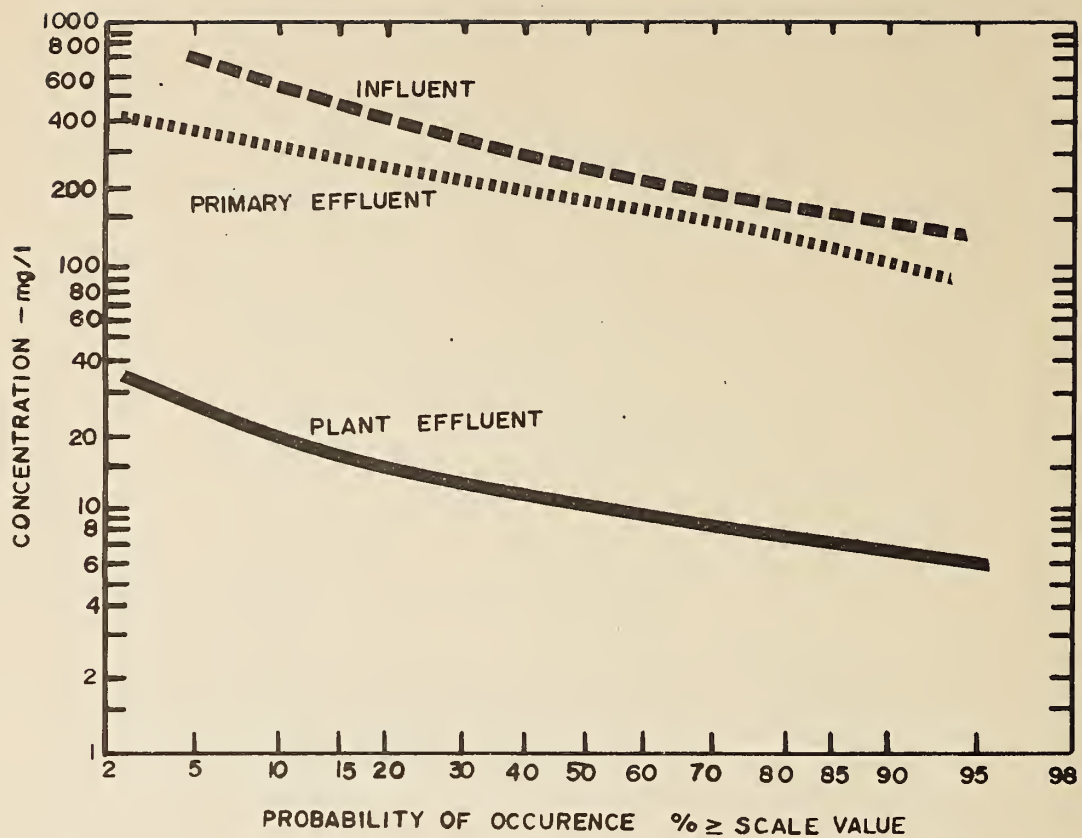


## **FLWS**

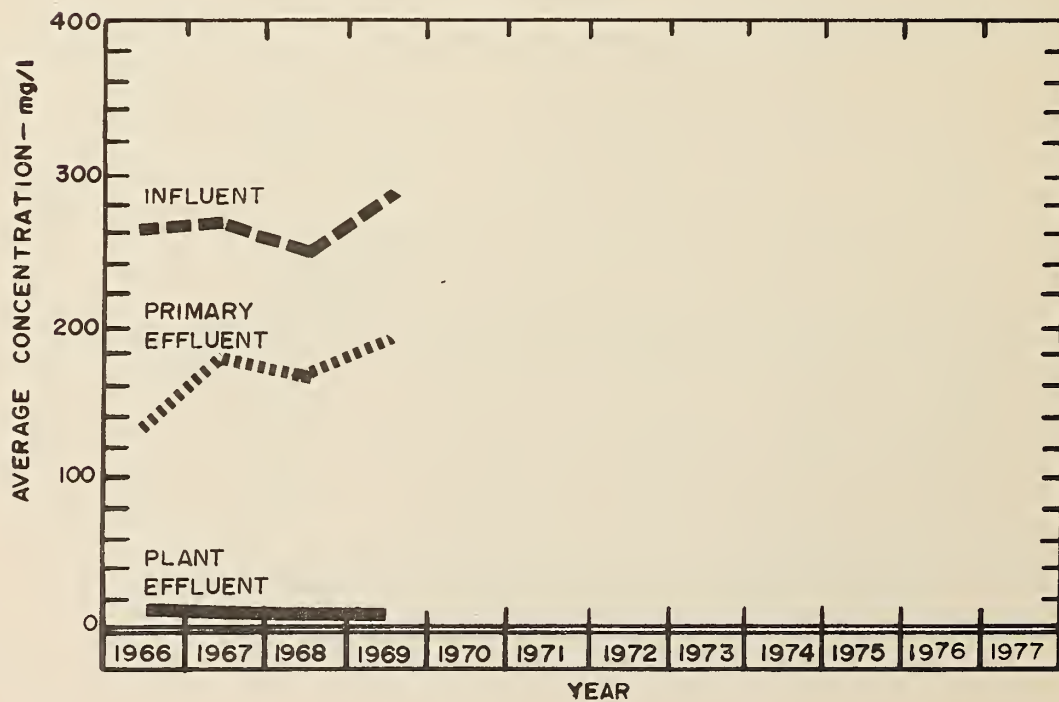


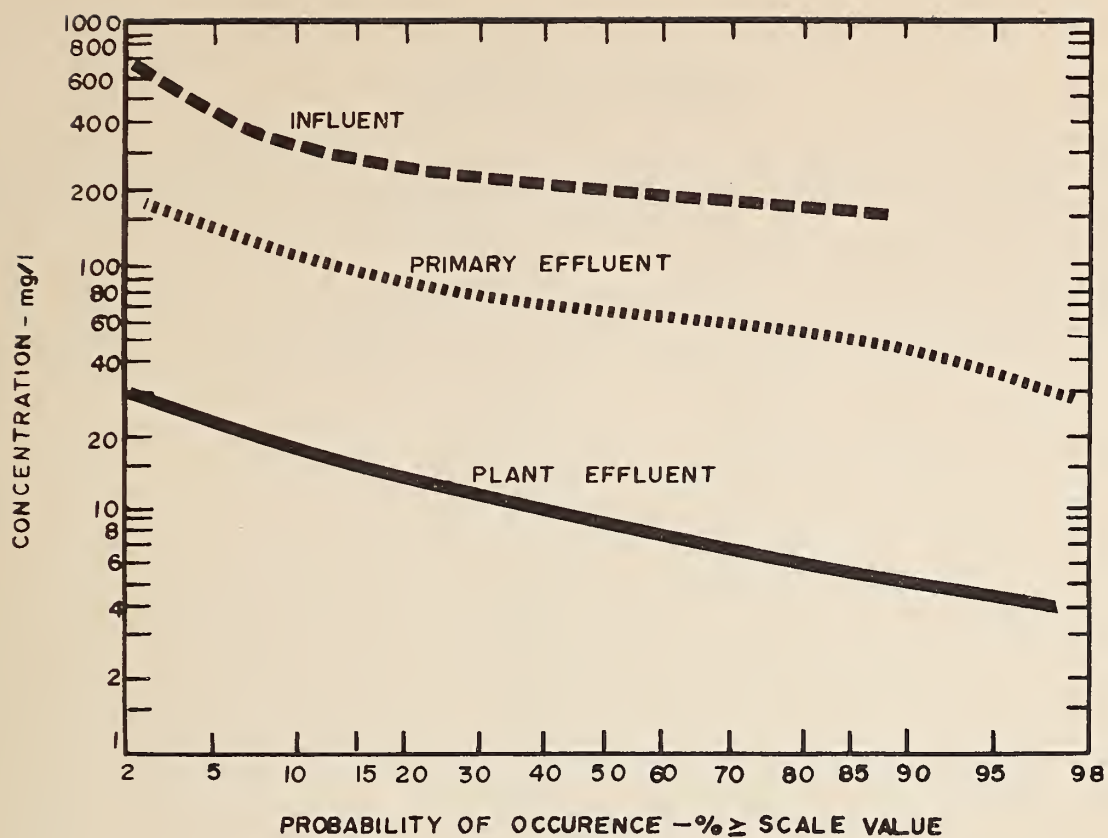
## PLANT FLOWS and CHLORINATION

| MONTH   | TOTAL FLOW<br>mil gal | AVERAGE<br>DAILY FLOW<br>mil gal | MAXIMUM<br>DAILY FLOW<br>mil gal | MINIMUM<br>DAILY FLOW<br>mil gal | CHLORINE USED<br>10 pounds | DOSAGE<br>mg/l |
|---------|-----------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------|----------------|
| JAN     | 128.0                 | 4.1                              | 6.9                              | 2.9                              | -                          | -              |
| FEB     | 105.9                 | 3.8                              | 7.0                              | 2.7                              | -                          | -              |
| MAR     | 114.9                 | 3.7                              | 6.8                              | 2.5                              | -                          | -              |
| APR     | 146.6                 | 4.9                              | 7.5                              | 3.0                              | -                          | -              |
| MAY     | 146.1                 | 4.7                              | 9.7                              | 2.6                              | 6.76                       | 6.8            |
| JUNE    | 131.9                 | 4.4                              | 7.0                              | 2.7                              | 10.76                      | 8.2            |
| JULY    | 133.3                 | 4.3                              | 8.2                              | 2.7                              | 8.18                       | 6.1            |
| AUG     | 113.7                 | 3.7                              | 5.3                              | 2.5                              | 6.38                       | 5.6            |
| SEPT    | 133.1                 | 4.4                              | 6.1                              | 3.9                              | 6.96                       | 5.2            |
| OCT     | 114.1                 | 3.7                              | 4.7                              | 2.5                              | 3.37                       | 5.7            |
| NOV     | 116.0                 | 3.8                              | 8.4                              | 3.8                              | -                          | -              |
| DEC     | 110.4                 | 3.5                              | 6.5                              | 2.5                              | -                          | -              |
| TOTAL   | 1494.0                | -                                | -                                | -                                | 42.4                       | -              |
| AVERAGE | 124.5                 | 4.1                              | -                                | -                                | 8.48                       | 6.3            |

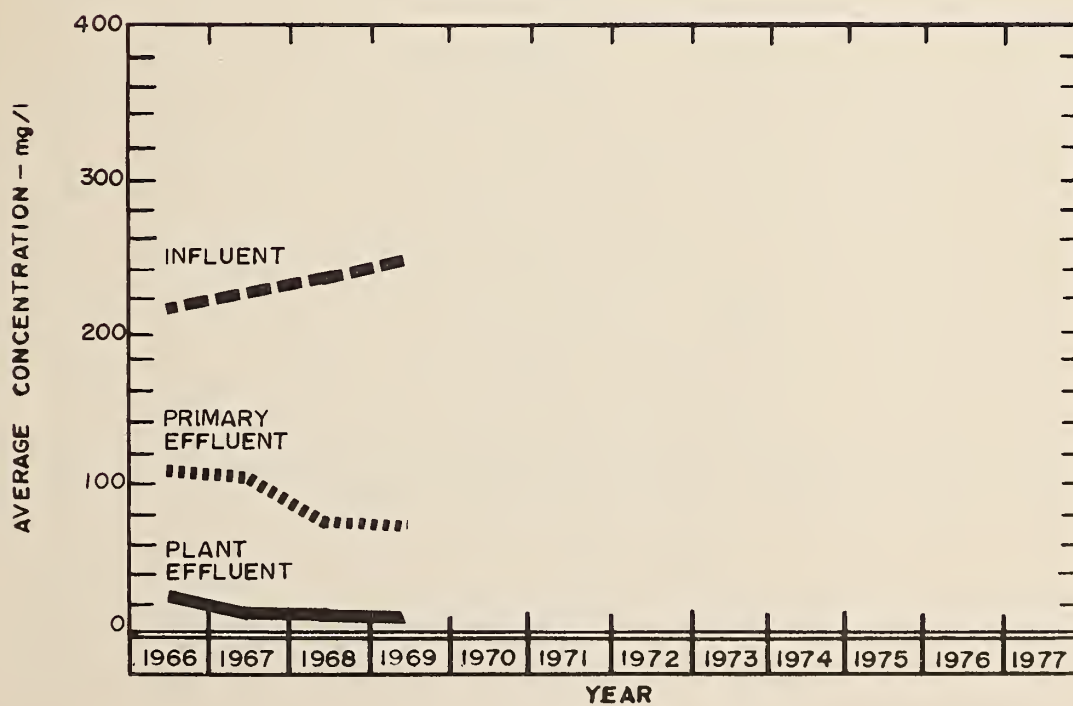


## BIOCHEMICAL OXYGEN DEMAND





## SUSPENDED SOLIDS

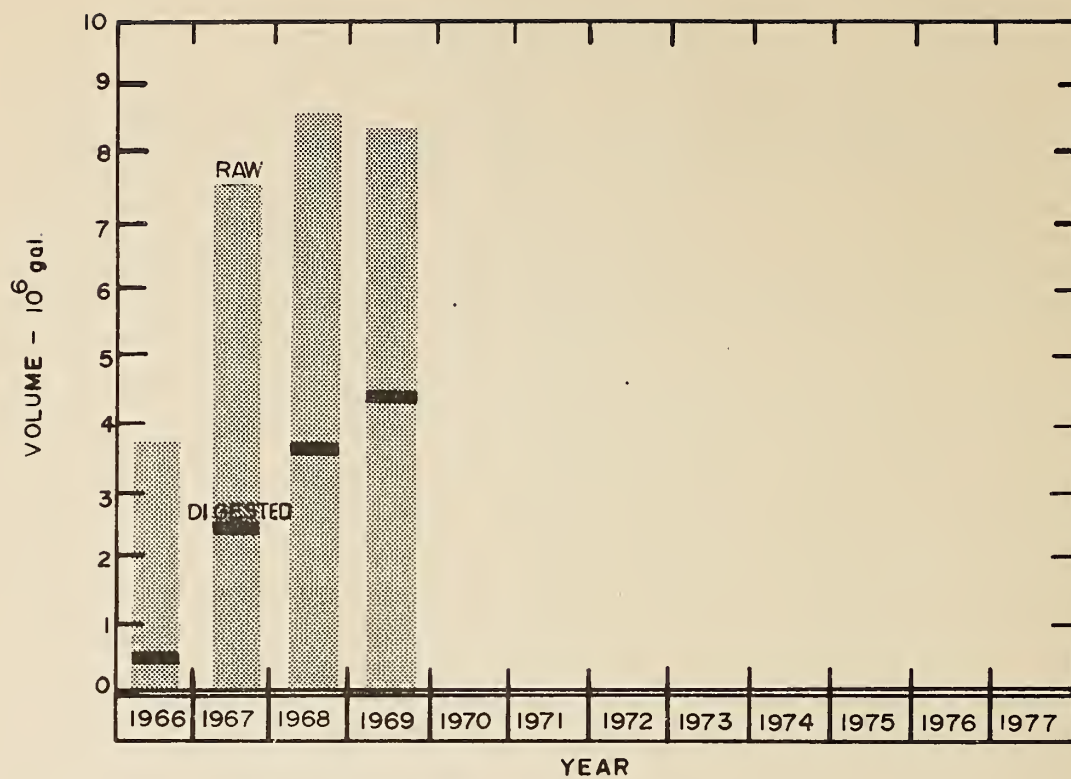


## PLANT EFFICIENCY

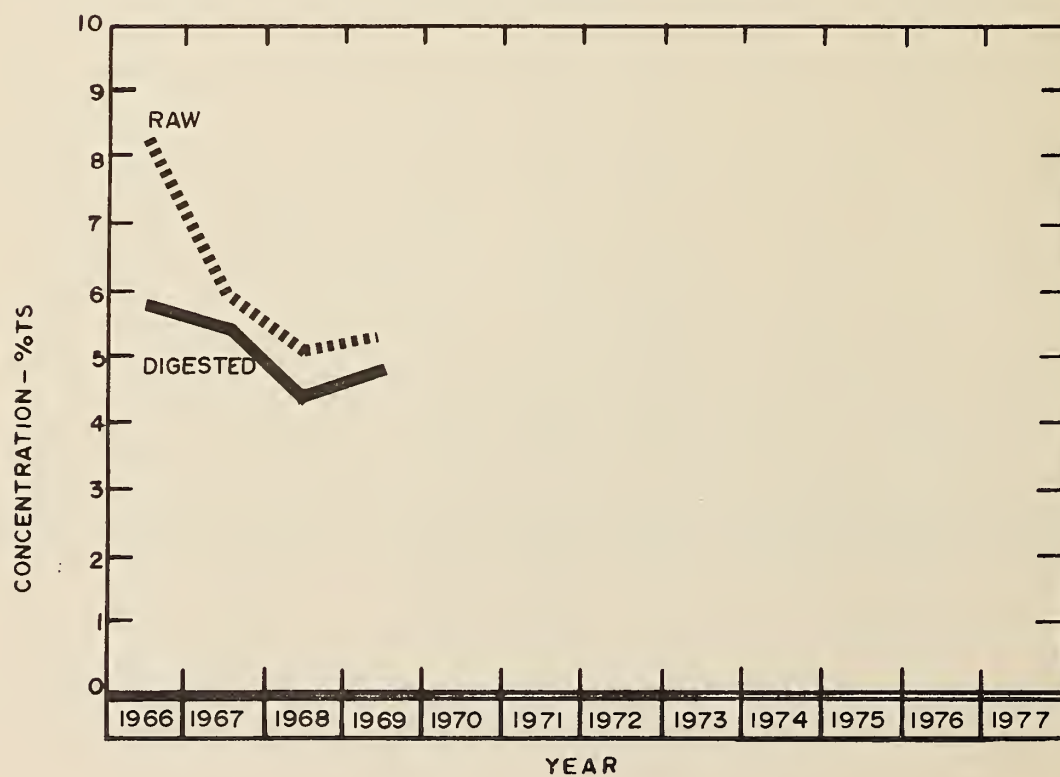
| MONTH   | BIOCHEMICAL OXYGEN DEMAND |      |           |           | SUSPENDED SOLIDS |               |           |           | GRIT<br>REMOVAL |
|---------|---------------------------|------|-----------|-----------|------------------|---------------|-----------|-----------|-----------------|
|         | INF.                      | EFF. | REDUCTION |           | INF.<br>CONCN    | EFF.<br>CONCN | REDUCTION |           |                 |
|         | mg/l                      | mg/l | %         | 10 pounds | mg/l             | mg/l          | %         | 10 pounds | cu ft           |
| JAN     | 258                       | 13   | 95        | 314       | 242              | 15            | 94        | 291       | 116             |
| FEB     | 337                       | 14   | 96        | 342       | 227              | 13            | 94        | 227       | 146             |
| MAR     | 347                       | 21   | 94        | 374       | 281              | 21            | 93        | 299       | 149             |
| APR     | 226                       | 17   | 92        | 306       | 378              | 15            | 96        | 532       | 223             |
| MAY     | 166                       | 10   | 94        | 228       | 222              | 7             | 97        | 314       | 141             |
| JUNE    | 288                       | 11   | 96        | 365       | 233              | 15            | 94        | 288       | 199             |
| JULY    | 276                       | 10   | 96        | 354       | 209              | 9             | 96        | 263       | 379             |
| AUG     | 287                       | 8    | 97        | 317       | 296              | 15            | 95        | 319       | 128             |
| SEPT    | 186                       | 9    | 95        | 236       | 205              | 7             | 97        | 264       | 244             |
| OCT     | 329                       | 8    | 98        | 366       | 237              | 9             | 96        | 260       | 172             |
| NOV     | 361                       | 12   | 96        | 405       | 241              | 10            | 95        | 268       | 183             |
| DEC     | 440                       | 15   | 96        | 469       | 237              | 11            | 95        | 250       | 146             |
| TOTAL   | -                         | -    | -         | 4076      | -                | -             | -         | 3575      | 2226            |
| AVERAGE | 306                       | 12   | 96        | 340       | 250              | 12            | 95        | 298       | 186             |

## AERATION

| MONTH   | AVG DAILY<br>FLOW<br>mil gal | AERATION INF. |      | SECONDY. EFF. |      | MLSS<br>CONCN<br>mg/l | F/M<br>lb BOD<br>lb MLSS | AIR USED<br>1000 cu ft<br>lb BOD | WASTE<br>SLUDGE<br>lb/DAY |
|---------|------------------------------|---------------|------|---------------|------|-----------------------|--------------------------|----------------------------------|---------------------------|
|         |                              | BOD           | SS   | BOD           | SS   |                       |                          |                                  |                           |
|         |                              | mg/l          | mg/l | mg/l          | mg/l |                       |                          |                                  |                           |
| JAN     | 4.0                          | 186           | 107  | 13            | 15   | 1015                  | .51                      | .39                              | 22.                       |
| FEB     | 3.7                          | 237           | 92   | 14            | 13   | 1420                  | .43                      | .38                              | 21.                       |
| MAR     | 3.5                          | 273           | 58   | 21            | 21   | 1420                  | .46                      | .40                              | 18.                       |
| APR     | 4.2                          | 152           | 55   | 17            | 15   | 1780                  | .24                      | .76                              | 12.                       |
| MAY     | 4.4                          | 130           | 70   | 10            | 7    | 1480                  | .26                      | .87                              | 20.                       |
| JUNE    | 4.2                          | 228           | 77   | 11            | 15   | 1280                  | .52                      | .54                              | 19.                       |
| JULY    | 4.1                          | 174           | 78   | 10            | 9    | 1290                  | .38                      | .68                              | 14.                       |
| AUG     | 3.6                          | 187           | 72   | 8             | 15   | 1270                  | .37                      | .71                              | 15.                       |
| SEPT    | 4.4                          | 118           | 63   | 9             | 7    | 1260                  | .29                      | 1.00                             | 13.                       |
| OCT     | 3.6                          | 196           | 65   | 4             | 9    | 1340                  | .37                      | .66                              | 11.                       |
| NOV     | 3.8                          | 206           | 76   | 12            | 10   | 1120                  | .45                      | .61                              | 14.                       |
| DEC     | 3.5                          | 243           | 75   | 15            | 11   | 1330                  | .44                      | .39                              | 18.                       |
| TOTAL   | -                            | -             | -    | -             | -    | -                     | -                        | -                                | -                         |
| AVERAGE | 3.9                          | 232           | 77   | 12            | 12   | 1327                  | .39                      | .62                              | 16.                       |



## DIGESTION



## SLUDGE DIGESTION and DISPOSAL

| MONTH   | RAW SLUDGE |              |            | DIGESTED SLUDGE |              |            | SUPERNATANT |              | SLUDGE DISPOSAL |            |
|---------|------------|--------------|------------|-----------------|--------------|------------|-------------|--------------|-----------------|------------|
|         | VOLUME     | TOTAL SOLIDS | VOL SOLIDS | VOLUME          | TOTAL SOLIDS | VOL SOLIDS | VOLUME      | TOTAL SOLIDS | DRYING BEDS     | TANK TRUCK |
|         | 10 gal     | %            | %          | 10 gal          | %            | %          | 10 gal      | %            | cu yd           | cu yd      |
| JAN     | 4.7        | 4.8          | 58         | 3.0             | 4.8          | 43         | -           | -            | 0               | 1780       |
| FEB     | 6.2        | 4.8          | 55         | 2.2             | 5.6          | 41         | -           | -            | -               | 1277       |
| MAR     | 6.7        | 5.1          | 63         | 2.2             | 4.2          | 40         | -           | -            | 0               | 1352       |
| APR     | 5.8        | 6.0          | 60         | 2.1             | 6.7          | 40         | -           | -            | 0               | 1245       |
| MAY     | 11.4       | 5.2          | 56         | 2.3             | 5.8          | 41         | -           | -            | 0               | 1363       |
| JUNE    | 9.0        | 5.1          | 60         | 2.1             | 6.3          | 38         | -           | -            | 0               | 1174       |
| JULY    | 7.0        | 5.4          | 54         | 2.6             | 6.8          | 39         | -           | -            | 0               | 1512       |
| AUG     | 4.3        | 5.3          | 61         | 4.2             | 6.0          | 42         | -           | -            | 1940            | 55         |
| SEPT    | 7.6        | 3.8          | 59         | 6.6             | 4.3          | 48         | -           | -            | 3200            | 723        |
| OCT     | 5.8        | 4.0          | 62         | 5.1             | 3.7          | 47         | -           | -            | 2350            | 712        |
| NOV     | 7.0        | 4.5          | 64         | 2.0             | 3.8          | 49         | -           | -            | 535             | 641        |
| DEC     | 7.2        | 5.5          | 60         | 2.6             | 4.4          | 46         | -           | -            | 0               | 1542       |
| TOTAL   | 82.7       | -            | -          | 37.0            | -            | -          | -           | -            | 8025            | 13872      |
| AVERAGE | 6.9        | 5.2          | 59         | 3.1             | 5.2          | 43         | -           | -            | 0               | 1156       |



Date Due

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